



US00D884130S

(12) **United States Design Patent** (10) **Patent No.:** **US D884,130 S**
Williams et al. (45) **Date of Patent:** **** May 12, 2020**

(54) **BACK FERRULE** 277/418, 449, 451–454, 458–460, 491,
277/517, 529, 602, 610, 612, 641–642,
277/644, 648; 285/339, 343
(71) Applicant: **Swagelok Company**, Solon, OH (US) CPC E04D 13/14; F16J 7/00
(72) Inventors: **Peter C. Williams**, Cleveland Heights, OH (US); **Howard C. B. Kuhns**, Aurora, OH (US) See application file for complete search history.

(73) Assignee: **SWAGELOK COMPANY**, Solon, OH (US)

(**) Term: **15 Years**

(21) Appl. No.: **29/666,233**

(22) Filed: **Oct. 11, 2018**

(56) **References Cited**

U.S. PATENT DOCUMENTS

388,522 A	8/1888	Beauchemin
1,323,705 A	12/1919	Lynch
1,874,284 A	8/1932	Goodall
2,150,042 A	3/1939	Shultz
2,171,217 A	8/1939	Hans
2,179,127 A	11/1939	Lauer
2,182,811 A	12/1939	Kocher

(Continued)

Related U.S. Application Data

(63) Continuation of application No. 14/317,741, filed on Jun. 27, 2014, now Pat. No. 10,100,955, which is a continuation of application No. 12/758,293, filed on Apr. 12, 2010, now abandoned, which is a continuation of application No. 12/115,096, filed on May 5, 2008, now Pat. No. 7,699,358, which is a continuation of application No. 10/604,348, filed on Jul. 14, 2003, now Pat. No. 6,877,757, which is a continuation of application No. 10/374,026, filed on Feb. 25, 2003, now Pat. No. 7,100,949, which is a continuation of application No. 09/469,549, filed on Dec. 22, 1999, now Pat. No. 6,629,708, which is a continuation-in-part of application No. 09/054,186, filed on Apr. 2, 1998, now Pat. No. 6,131,963, which is a continuation-in-part of application No. 08/834,255, filed on Apr. 15, 1997, now Pat. No. 5,882,050.

(51) **LOC (12) Cl.** **23-01**

(52) **U.S. Cl.**
USPC **D23/269**

(58) **Field of Classification Search**
USPC D23/269, 262, 249, 259; D15/138–139, D15/143; 277/351–360, 504, 563, 572, 277/316, 364–365, 394, 397, 406–407,

FOREIGN PATENT DOCUMENTS

AU	110622	5/1940
CH	598530	4/1978
DE	2735477	2/1978
DE	1600553	5/1979
DE	4041679	6/1992

(Continued)

Primary Examiner — Amy C Wierenga
(74) *Attorney, Agent, or Firm* — Calfee, Halter & Griswold LLP

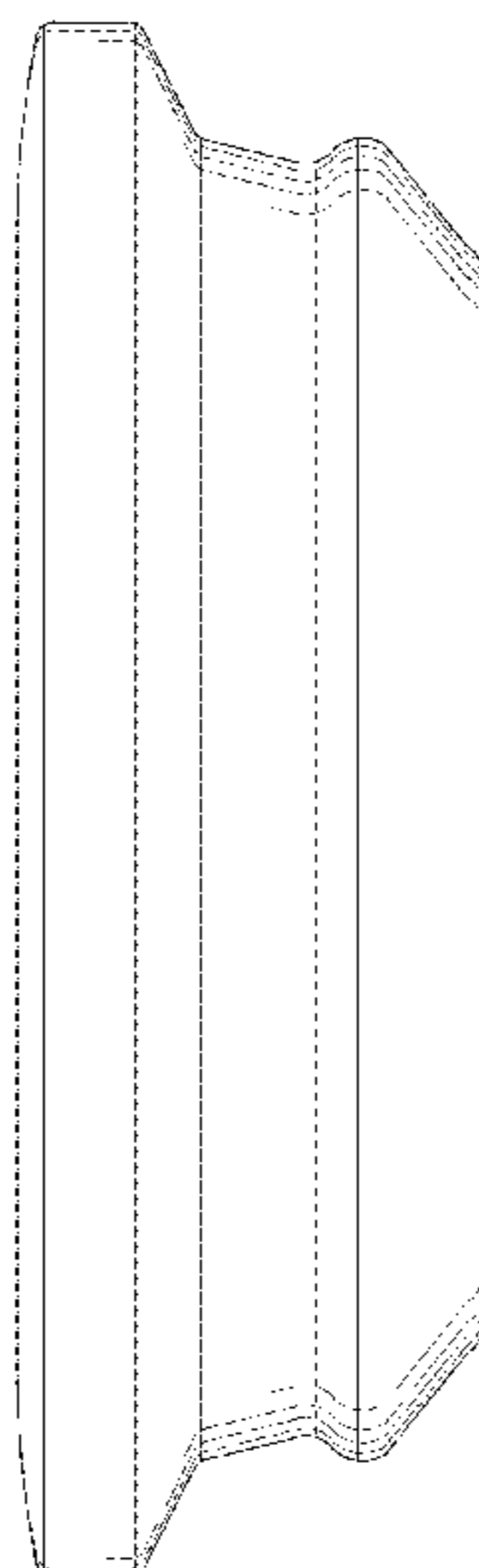
(57) **CLAIM**

We claim the ornamental design for a back ferrule, as shown and described.

DESCRIPTION

FIG. 1 is a left side elevational view of a back ferrule, the right side elevational, top plan, and bottom plan views being identical thereto;
FIG. 2 is a rear elevational view thereof;
FIG. 3 is a front elevational view thereof; and,
FIG. 4 is a cross-sectional view thereof, taken along the line 4-4 of FIG. 3.

1 Claim, 2 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

2,230,116 A 1/1941 Hans
 2,230,616 A 2/1941 Edwin
 2,251,717 A 8/1941 Parker
 2,287,889 A 6/1942 Ernest
 2,330,841 A 10/1943 Parker
 2,344,032 A 3/1944 Eden
 2,405,822 A 8/1946 Franck
 2,437,632 A 3/1948 Wolfram
 2,460,635 A 2/1949 Herold
 2,463,707 A 3/1949 Matousek
 2,473,119 A 6/1949 Wolfram
 2,484,815 A 10/1949 Crawford
 2,506,838 A 5/1950 Leonard
 2,508,838 A 5/1950 Roberts
 2,579,529 A 12/1951 Woodling
 2,641,487 A 6/1953 LaMarre
 2,687,315 A 8/1954 Courtot
 2,701,149 A 2/1955 Hans et al.
 2,738,994 A 3/1956 Kreidel
 2,774,651 A 5/1956 Bredtschneider
 2,749,152 A 6/1956 Courtot
 3,075,793 A 1/1963 Lennon
 3,103,373 A 9/1963 Lennon
 3,120,696 A 2/1964 Samuel
 3,120,969 A 2/1964 Schmohl
 3,174,778 A 3/1965 Gross
 3,215,457 A 11/1965 Teeters
 3,250,550 A 5/1966 Lyon
 3,275,350 A 9/1966 Kody
 3,290,069 A 12/1966 Davis
 3,321,947 A 5/1967 Teeters
 3,325,192 A 6/1967 Sullivan
 3,336,058 A 8/1967 Franck
 3,433,508 A 3/1969 Teeters
 3,445,128 A 5/1969 Teeters
 3,484,123 A 12/1969 Velden
 3,515,457 A 6/1970 Dillon, Jr.
 3,584,900 A 6/1971 Lennon
 3,643,984 A 2/1972 Buccari
 3,695,647 A 10/1972 Pugliese
 3,707,302 A 12/1972 Hiszpanski
 3,736,008 A 5/1973 Crawford
 3,767,080 A 10/1973 Erickson
 3,888,522 A 6/1975 Moreiras
 3,921,988 A * 11/1975 Prasse F16J 9/06
 277/451
 3,970,337 A 7/1976 Niemeyer
 4,005,824 A 2/1977 Becker
 4,037,864 A 7/1977 Anderson
 4,059,297 A 11/1977 Granl
 4,076,286 A 2/1978 Spontelli
 4,230,349 A 10/1980 Normark
 4,235,461 A 11/1980 Normark
 4,304,422 A 12/1981 Schwarz
 4,361,283 A 11/1982 Hetherington
 D281,525 S * 11/1985 Gilbert D23/269
 4,556,242 A 12/1985 Kowal
 4,566,702 A * 1/1986 Traub F16J 15/3208
 277/584
 4,630,851 A 12/1986 Ogawa
 4,702,420 A 10/1987 Rath et al.
 4,826,218 A 5/1989 Zahuranec
 4,915,427 A 4/1990 Zahuranec
 4,995,846 A 2/1991 Johnston
 5,027,489 A 7/1991 Johnston
 5,074,599 A 12/1991 Wirbel
 D323,024 S * 1/1992 Petersson D23/269
 5,083,749 A 1/1992 Linderman
 5,183,322 A 2/1993 Haruch
 5,217,261 A 6/1993 DeWitt et al.
 D347,885 S * 6/1994 Gustafsson D23/269
 D351,459 S * 10/1994 Andersson D23/269
 5,351,998 A 10/1994 Behrens et al.
 5,482,232 A 1/1996 Wynn

D374,710 S * 10/1996 Gustafsson D23/269
 D379,493 S * 5/1997 Woods D23/269
 5,882,050 A 3/1999 Williams
 5,934,714 A 8/1999 Sugiyama
 5,954,375 A 9/1999 Trickle et al.
 6,073,976 A 6/2000 Schmidt et al.
 6,131,963 A * 10/2000 Williams F16L 19/10
 285/343
 D442,609 S * 5/2001 Quantz D15/123
 6,345,845 B2 2/2002 Johnston
 6,629,708 B2 10/2003 Williams
 7,100,949 B2 * 9/2006 Williams F16L 19/10
 285/342
 7,240,929 B2 * 7/2007 Williams F16L 19/10
 285/249
 7,367,595 B2 5/2008 Williams et al.
 7,614,668 B1 11/2009 Williams et al.
 7,699,358 B2 4/2010 Williams et al.
 7,699,758 B1 4/2010 Williams et al.
 D616,966 S * 6/2010 Angell D23/262
 D681,176 S * 4/2013 Chacko D23/269
 D731,035 S * 6/2015 Lo Cicero D23/269
 D785,144 S * 4/2017 Kitagawa D23/269
 10,100,955 B2 * 10/2018 Williams F16L 19/10
 2003/0178848 A1 9/2003 Williams
 2004/0019286 A1 1/2004 Lia
 2004/0113429 A1 * 6/2004 Williams F16L 19/10
 285/382.7
 2004/0119287 A1 6/2004 Williams et al.
 2008/0273581 A1 12/2008 Williams et al.
 2008/0296895 A1 * 12/2008 Williams F16L 19/10
 285/382.7
 2010/0025990 A1 * 2/2010 Williams F16L 19/10
 285/342
 2011/0049877 A1 3/2011 Williams et al.
 2014/0042714 A1 * 2/2014 Bucknell F16J 15/061
 277/644

FOREIGN PATENT DOCUMENTS

DE 4211498 10/1993
 DE 4219722 12/1993
 DE 4238877 5/1994
 DE 4304534 8/1994
 EP 71678 2/1983
 EP 223185 5/1987
 EP 484091 5/1992
 EP 489289 6/1992
 EP 528079 2/1993
 EP 1406039 4/2004
 FR 757204 12/1933
 FR 1092160 4/1955
 FR 1170298 1/1959
 GB 836002 6/1960
 GB 1130835 10/1968
 GB 2032555 5/1980
 GB 2049853 12/1980
 GB 2080900 2/1982
 JP 3079892 4/1991
 JP 3229090 10/1991
 JP 5079586 3/1993
 JP 7055073 3/1995
 JP 7110084 4/1995
 JP 80933975 4/1996
 JP 8145251 6/1996
 JP 8210567 8/1996
 NL 6710340 1/1968
 TW 35532 2/1981
 WO 89/09904 10/1989
 WO 93/025837 12/1993
 WO 97/007356 2/1997
 WO 97/20163 6/1997
 WO 98/032999 7/1998
 WO 98/046925 10/1998
 WO 01/073333 10/2001

* cited by examiner

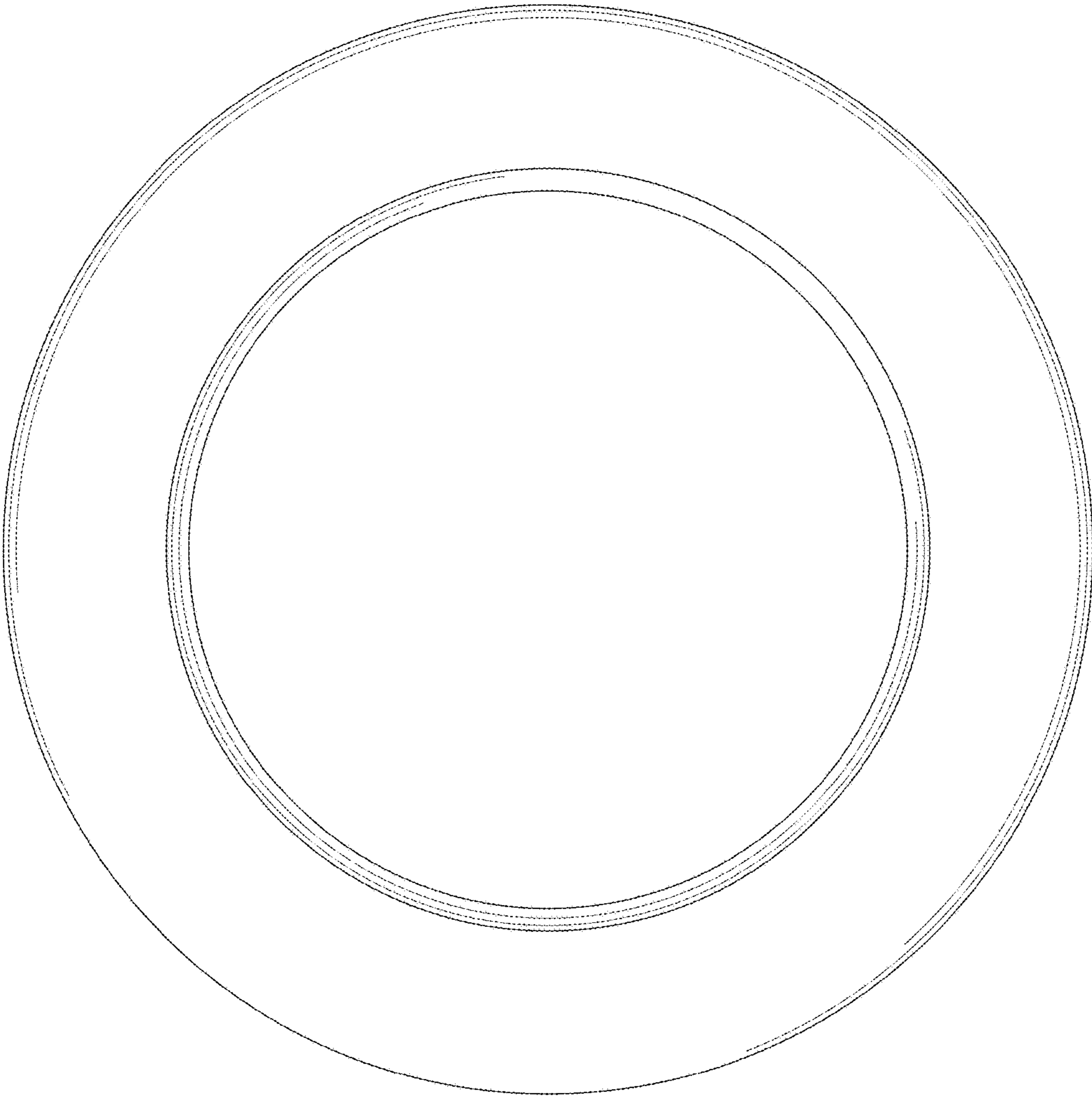


FIG. 2

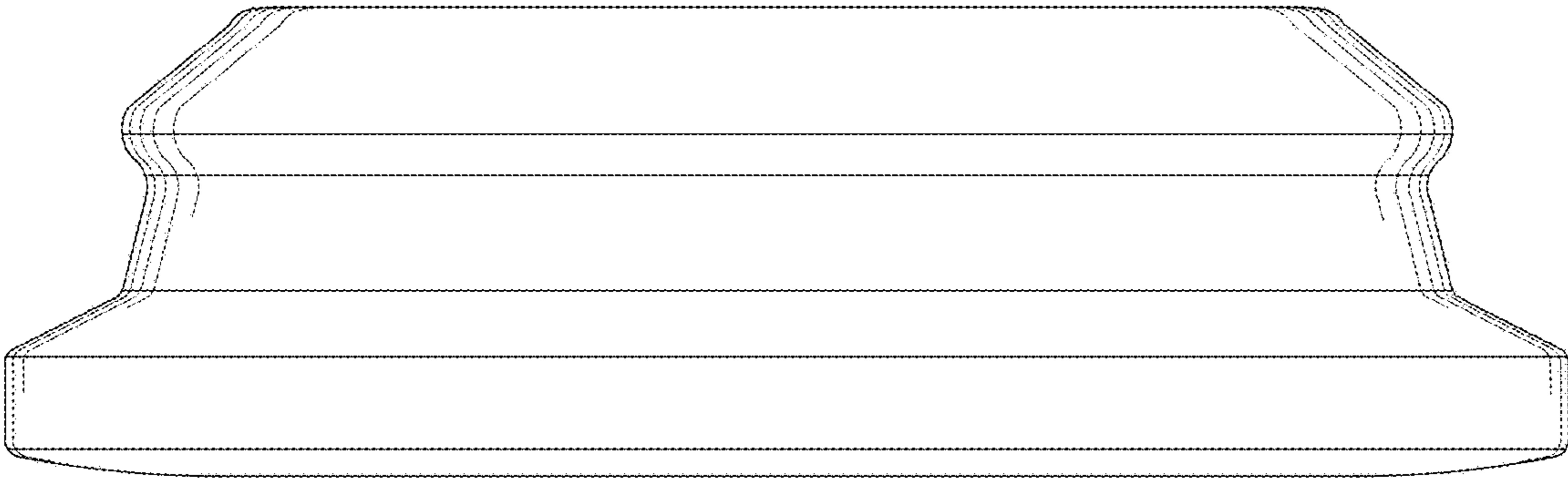


FIG. 1

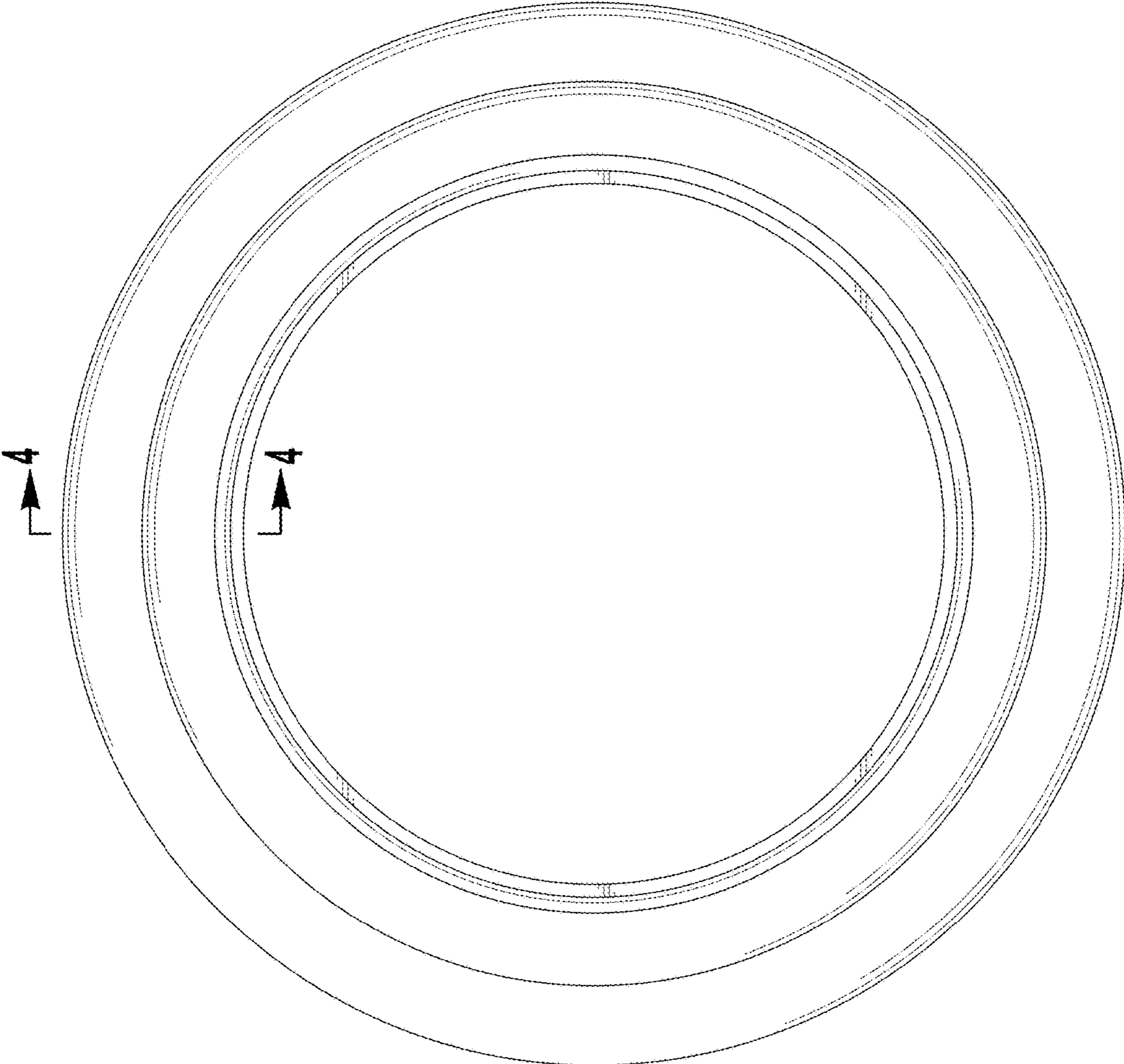


FIG. 3

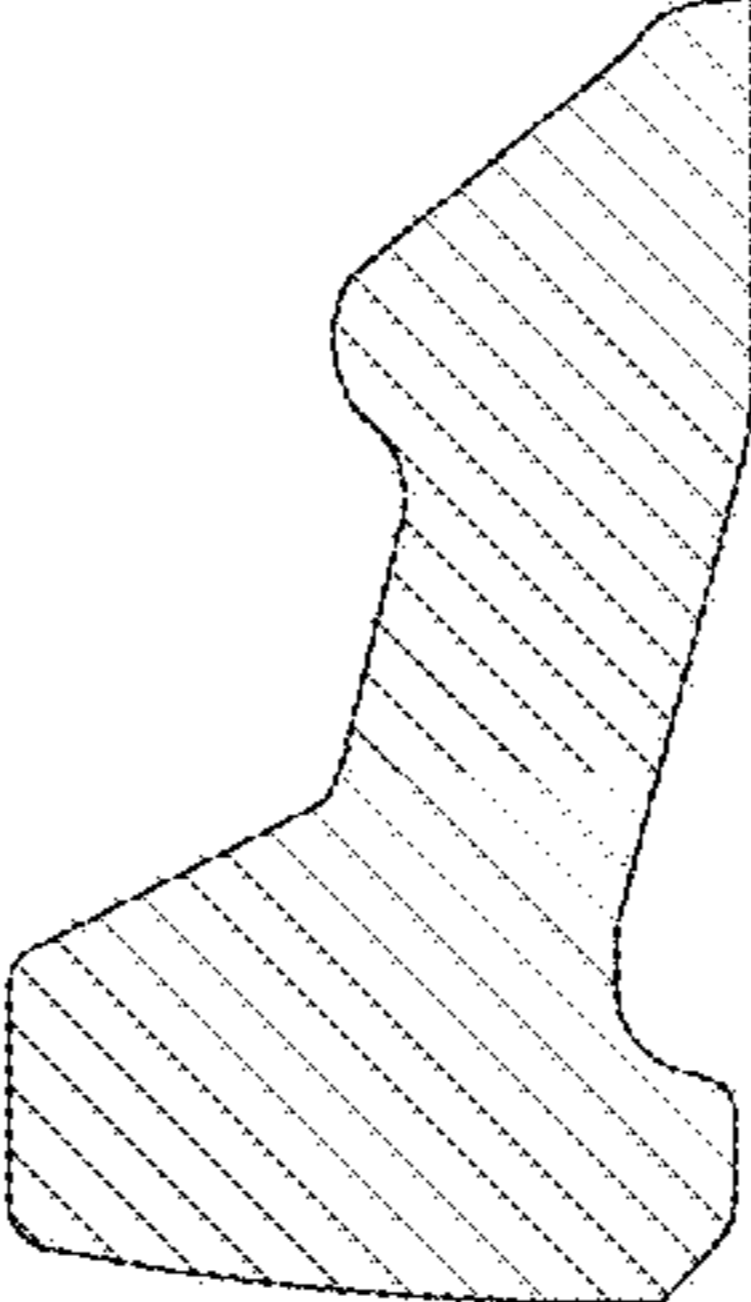


FIG. 4